| DEPARTMENT OF TRANSPORTATION<br><br>FEDERAL AVIATION ADMINISTRATION<br><br>TYPE CERTIFICATE DATA SHEET NO. E6EU | E6EU<br>Revision: 1<br>DATE: December 6, 2002<br><br>TURBOMECA<br>MODELS: ASTAZOU XII H-1 |
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Engines of models described herein conforming with this data sheet (which is a part of Type Certificate No. E6EU) and other approved data on file with the Federal Aviation Administration, meet the minimum standards for use in certificated aircraft in accordance with pertinent aircraft data sheets and applicable portions of the Federal Aviation Regulations provided they are installed, operated, and maintained as prescribed by the approved manufacturer's manuals and other approved instructions.

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| Type Certificate Holder | Turbomeca<br>64 511 Bordes Cedex<br>France |
| Model | ASTAZOU XII H-1 |
| Type | Turboprop, with two stage axial compressor, single stage centrifugal compressor, annular combustion chamber, and three turbine stages.<br><br>20.81 : 1 propeller ratio (2066 p.r.p.m.) |
| Ratings (ISA, Sea Level)<br>(See NOTE 3<br>Takeoff and Maximum Continuous | |
| Equivalent shaft hp. | 671 |
| Shaft hp. | 630 |
| Jet thrust, lb. | 97 |
| Gas generator r.p.m. | 43000 (101.0%) |
| Thermic load (nom'l.) | 100% |
| Propeller shaft | Internal parallel splines in accordance with French NFE 22 131 Spec., Type 8 X 56 X 62. |
| Fuel control | |
| Fuel pump block and speed governor | Turbomeca P/N 064 53 520 |
| Master fuel and feathering cock | 074 31 000 |
| Igniting micropump | 044 62 000 |
| Thermic load limiter | 072 82 541 |
| Fuel | Approved Specifications (latest amendment)<br>JP-1 (MIL-F-5616), JP-4 (MIL-J-5624)<br>JP-5 (MIL-J-5624) - If density below 6.67 lb./U.S. gals.<br>(See NOTE 10.) |
| Oil | Approved Specification MIL-L-7808 latest amendment. Equivalent oil specifications for French and U.K. standards are listed in engine operation manual, Turbomeca Doc. No. 262.01.934, March 1967. |
| Principal Dimensions | |
| Length, in. | 57.8 |
| Maximum diameter, ins. | 20.08 |
| Weight (dry), lb. | 349 (See NOTE 9.) |

C.G. location (dry weight)

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| Forward of engine mounts, in. | 6.87 |
| Below engine shaft, in. | .197 |
| Left of engine shaft, in. | .314 |

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| Ignition system | Low energy, 24 volt supply, with:<br>Two torch igniters — Turbomeca P/N 237 30 750<br>Dual ignition coil — Air Equipment P/N 81 265 |
| Certification basis | FAR 21.29. French Regulation AIR 2051, Chapter 8, effective July 21, 1961, certified by S.C.A.C. equivalent to FAR Part 33, including Amendment 33-2, effective July 6, 1966.<br>Date of application for type certificate: February 20, 1967.<br>Type Certificate E6EU issued: May 9, 1967. |
| Import Requirements | Each individually imported engine and replacement part must be accompanied by a Bureau Veritas "Certificate of Control of Engine" signed by a Bureau Veritas inspector. |

NOTES

NOTE 1. Maximum permissible temperatures: Turbine exhaust gas temperatures, $t_4$. (also referred to as ECT, or Jet Pipe Temp. (JPT)) measured by two thermocouples. °C.

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| Maximum during starts (3 sec. limit) | 600 |
| Maximum during starts (unrestricted) | 550 |
| Maximum during acceleration following start | 400 |
| Maximum for takeoff and maximum continuous power | 520 |
| Maximum transitory at takeoff and max. cont. power (3 secs) | 530 |
| Maximum for braking (1 min. limit) with reverse propeller pitch | 400 |

All overtemperatures must be recorded in engine log book.
Occurrence of 10 starting overtemperatures, over 600°C, each of less than 3 seconds duration, requires hot-section inspection of engine. Any exceeding of 700°C requires engine inspection.

ECT (JPT) varies in same sense as ambient temperature. Variation is approximately 1/2°C for 1°C of ambient temperature variation for temperatures below 15°C (59°F), and 1°C for 1°C of ambient temperature variation for temperatures above 15°C.

Oil Temperatures (Engine inlet)

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| Minimum for starting | -30°C |
| Minimum for takeoff | 10°C |
| Maximum | 85°C |

Maximum Thermic Load

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| Takeoff and maximum continuous | 101% |
| Maximum (5 seconds) | 110% |
| For braking with reverse propeller pitch | 60% |

NOTE 2. Fuel and Oil Pressure Limits

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| Fuel: | At engine inlet for starting, p.s.i.g. | 2.85 - 7.10 |
| | At engine inlet (normal), p.s.i.g. | -1.4 - +11.5 |
| Oil: | Normal oil pressure (low pressure warning light) | 12.8 p.s.i.g. |

NOTE 3. Engine ratings are based on the following conditions:

Static sea level standard conditions, 59°F (15°C), and 29.92 in.Hg.
No air bleed
No power offtake

Rated exhaust gas temperature is provided with each engine (EGT, $t_4$, JPT). It varies with engines but is never higher than 520°C at takeoff and maximum continuous rating. This value corresponds to a turbine entry temperature of 895°C.

Each engine is equipped on aircraft with an exhaust pipe, the small section variations of which have no significant effect on engine performance.

Jet thrust is converted to equivalent shaft hp. by dividing the thrust value by a factor of 2.5

NOTE 4. Accessory Drive Provisions. The following accessories are provided on the engine and are included in the basic engine weight.

| Accessories | Rotation Sense | Reduction Ratio | Continuos Torque (in lb.) | Maximum Torque (in lb.) | Moment due to the Weight (in lb.) |
|---|---|---|---|---|---|
| Starter PARIS-RHONE DMA 1220 | A.C. | 1/5,48797 | 56 | 350 | 105 |
| Tachometer AMA 8470 BF | A.C. | 1/10,1395 | | | 5 |

NOTE 5. External airbleed for aircraft services shall not exceed 5% of zero bleed mass flow at Takeoff/Maximum Continuous Rating.

NOTE 6. This engine meets FAA requirements for adequate turbine disc integrity and rotor blade containment and does not require external armoring.

NOTE 7. This engine includes an anti-icing system supplied by compressor bleed and has been proven satisfactory for operation at -30°C (-22°F).

NOTE 8. This engine is approved only for use with an electric propeller adapted to the required regulation system.

NOTE 9. Dry weight includes all regulation and starting apparatus and oil tank, but excludes exhaust pipe, oil cooler and propeller.

NOTE 10. Approved emergency fuels: Gasoline (MIL-G-5572) and automotive gasoline (MIL-G-3056 are permitted for use for a maximum of 25 hours during any overhaul period. Addition of 1% approved oil is recommended.
Equivalent fuel specifications for French and U.K. standards are listed in the Turbomeca ASTAZOU XII H-1 Operation Manual.

The following fuel additives are approved for use:

Phillips PFA/55 MB anti-icing additive, in quantity up to 0.15% by volume.
Shell ASA-3 anti-static additive, in quantity up to 0.0001 percent by volume.

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